

PSI-REP-PROFIBUS/12MB - Repeater



2708863

<https://www.phoenixcontact.com/us/products/2708863>

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Modular repeater for electrical isolation and range increase for PROFIBUS up to 12 Mbps, 4-way isolation, rail-mountable, supply 24 V DC

Product description

The performance and availability of bus systems can be significantly increased by using repeaters. In addition to electrical isolation, bus segmentation with repeaters makes it possible to multiply the permissible coverage of the network and to extend the number of devices.

Your advantages

- Automatic data rate detection or fixed data rate setting via DIP switches
- Suitable for all data rates up to 12 Mbps
- High-quality 4-way isolation between all interfaces
- Bit oversampling for reliable detection of sporadic disturbances
- Bit retiming for unrestricted cascading of devices
- Filtering of faulty telegrams based on start delimiter detection
- Can be combined with PSI-MOS FO converters in a modular way thanks to DIN rail connectors

Commercial data

Item number	2708863
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN11
Product key	DNC121
GTIN	4046356078993
Weight per piece (including packing)	232.3 g
Weight per piece (excluding packing)	212.4 g
Customs tariff number	85176200
Country of origin	DE

Technical data

Notes

Note on application

Note on application	Only for industrial use
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Utilization restriction

CCCex note	Use in potentially explosive areas is not permitted in China.
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Product properties

Product type	Interface converter
MTTF	1638 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
	812 Years (SN 29500 standard, temperature 40°C, operating cycle 34.25%)
	340 Years (SN 29500 standard, temperature 40°C, operating cycle 100%)
MTBF	1136 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))
	238 Years (Telcordia standard, 40°C temperature, 34.25% operating cycle (5 days a week, 12 hours a day))

Electrical properties

Electrical isolation	VCC // TBUS // PROFIBUS (A) // PROFIBUS (B)
Maximum power dissipation for nominal condition	2.16 W
Test voltage data interface/power supply	1.5 kV _{rms} (50 Hz, 1 min.)
Test voltage data interfaces	1.5 kV

Supply

Supply voltage range	18 V DC ... 30 V DC (via pluggable COMBICON screw terminal block)
Nominal supply voltage	24 V DC
Typical current consumption	< 90 mA (24 V DC ...)
Max. current consumption	≤ 2 A (For operation in a joining station, via the DIN rail connector)

Output data

Switching

Output name	Relay output
Output description	Alarm output
Number of outputs	1
Maximum switching voltage	60 V DC (Resistive Load, General Load)
	30 V AC (Resistive load)
	42 V AC (peak, resistive load)
Limiting continuous current	0.46 A

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Connection data

Supply

Stripping length	7.00 mm
Tightening torque	0.6 Nm ... 0.8 Nm

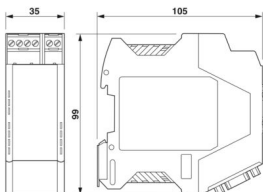
Interfaces

Bit distortion, input	max. $\pm 35\%$
Bit distortion, output	$< 6.25\%$
Bit delay	1 bit (Direct mode)
Signal	PROFIBUS
Transmission channels	2 (1/1), TD, RD, half duplex

Data: PROFIBUS acc. to IEC 61158, RS-485 2-conductor

Transmission speed	9.6/19.2/45.45/93.75/187.5/500/1500/3000/6000/12000 kbps (can be set manually and automatically)
Connection method	D-SUB-9 female connector
Transmission length	≤ 1200 m (Depends on transmission speed and cable type)
Termination resistor	external
Single conductor/terminal point, rigid	0.2 mm ² ... 2.5 mm ²
Single-wire/terminal point, flexible	0.2 mm ² ... 2.5 mm ²
Max. AWG conductor cross-section, flexible	14
Min. AWG conductor cross-section, flexible	24
Single-wire/terminal point, rigid AWG max.	14
Single-wire/terminal point, rigid AWG min.	24
Transmission medium	2-wire twisted pair, shielded
File format/coding	UART (11 Bit, NRZ)
Data direction switching	Automatic control, min. station response time 2 bits
Output nominal voltage	5 V DC $\pm 5\%$
Output current	50 mA

Dimensions

Dimensional drawing	
Width	35 mm
Height	99 mm
Depth	105 mm

Material specifications

Color (Housing)	gray (RAL 7042)
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Material (Housing)	PA 6.6-FR
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Mechanical tests

Free fall in accordance with IEC 60068-2-32	: 1 m
Vibration resistance in accordance with EN 60068-2-6/IEC 60068-2-6	: 5g, 10...150 Hz, 2.5 h, in XYZ direction
Shock in accordance with EN 60068-2-27/IEC 60068-2-27	: 15g, 11 ms period, half-sine shock pulse

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-20 °C ... 60 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Altitude	≤ 5000 m (For restrictions, see the manufacturer's declaration for altitude operation) ≤ 2000 m (Hazardous locations)
Permissible humidity (operation)	30 % ... 95 % (non-condensing)

Approvals

CE

Certificate	CE-compliant
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ATEX

Identification	Ⓔ II 3 G Ex ec IIC T5 Gc
Certificate	UL 21 ATEX 2550X
Note	Please follow the special installation instructions in the documentation!

IECEX

Identification	Ex ec IIC T5 Gc
Certificate	IECEX ULD 21.0013X

UL, USA/Canada

Identification	Class I, Zone 2, AEx ec IIC T5 Gc Ex ec IIC T5 Gc X Class I, Div. 2, Groups A, B, C, D
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KC approval for South Korea

Certificate	MSIP-REI-PCK-2708863
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Corrosive gas test

Identification	ISA-S71.04-1985 G3 Harsh Group A
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EMC data

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Noise immunity	EN 61000-4-2

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Noise emission

Standards/regulations	EN 55011
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Electrostatic discharge

Standards/regulations	EN 61000-4-2
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Electrostatic discharge

Contact discharge	± 6 kV
Discharge in air	± 8 kV
Comments	Criterion B

Electromagnetic HF field

Standards/regulations	EN 61000-4-3
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Electromagnetic HF field

Frequency range	80 MHz ... 3 GHz
Field intensity	10 V/m
Comments	Criterion A

Fast transients (burst)

Standards/regulations	EN 61000-4-4
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Fast transients (burst)

Input	± 2 kV
Signal	± 2 kV
Comments	Criterion B

Surge current load (surge)

Standards/regulations	EN 61000-4-5
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Surge current load (surge)

Input	± 0.5 kV
Signal	± 1 kV
Comments	Criterion B

Conducted interference

Standards/regulations	EN 61000-4-6
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Conducted interference

Comments	Criterion A
Voltage	10 V

Emitted interference

Standards/regulations	EN 55011
Comments	Class A, industrial applications

Criteria

Criterion A	Normal operating behavior within the specified limits.
Criterion B	Temporary impairment to operational behavior that is corrected

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	by the device itself.
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Standards and regulations

Free from substances that could impair the application of coating	VDMA 24364:2018-05
Standards/regulations	EN 62368

Mounting

Mounting type	DIN rail mounting
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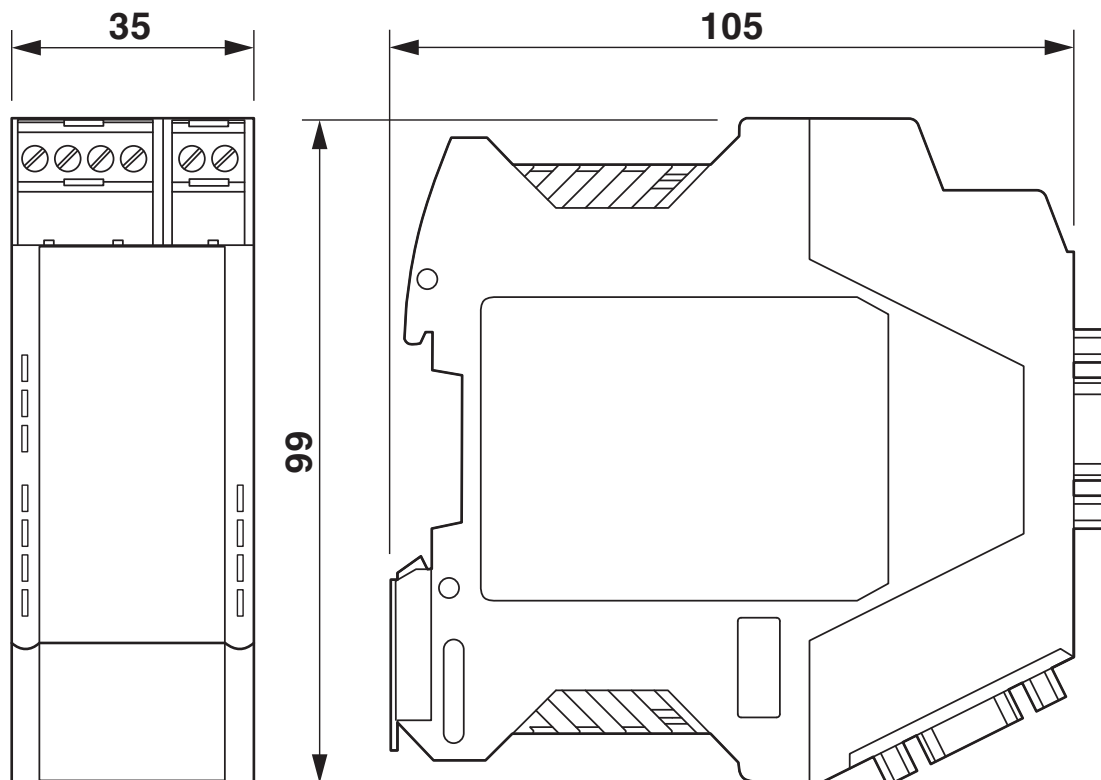
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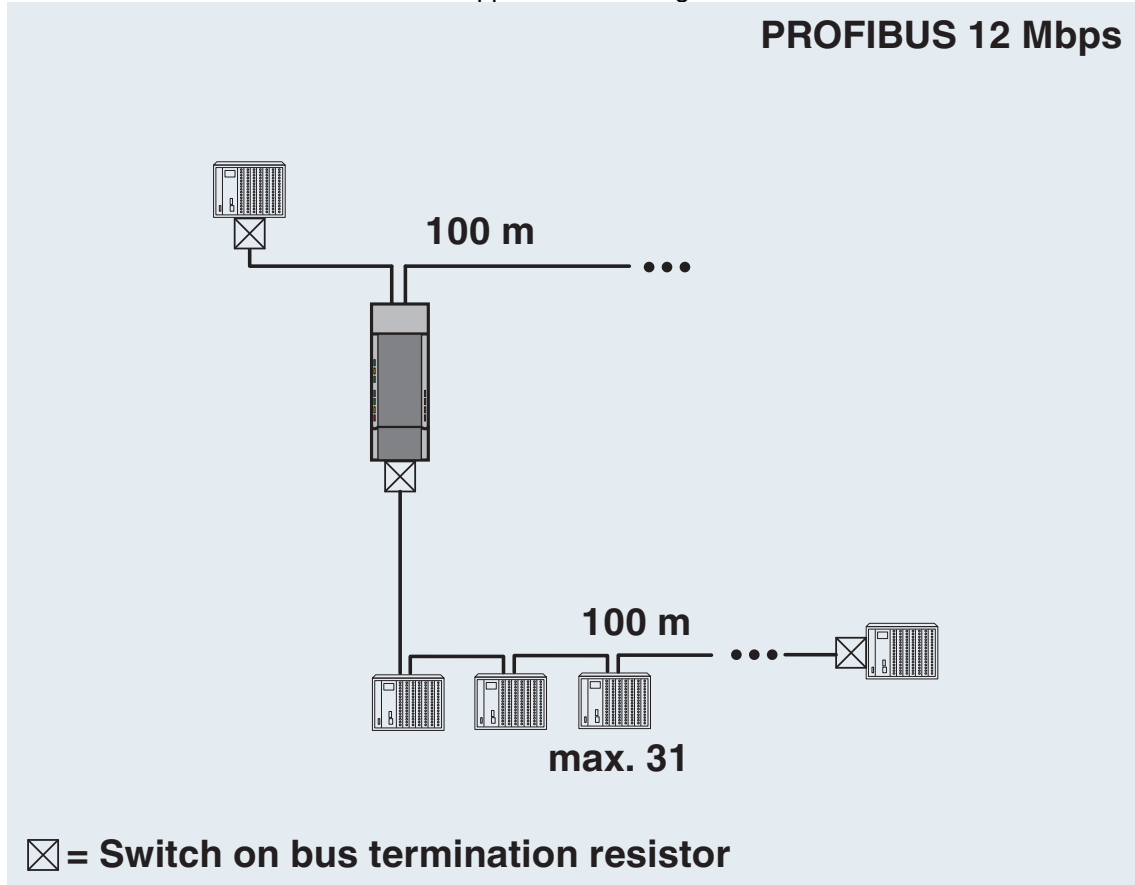
Drawings

Dimensional drawing



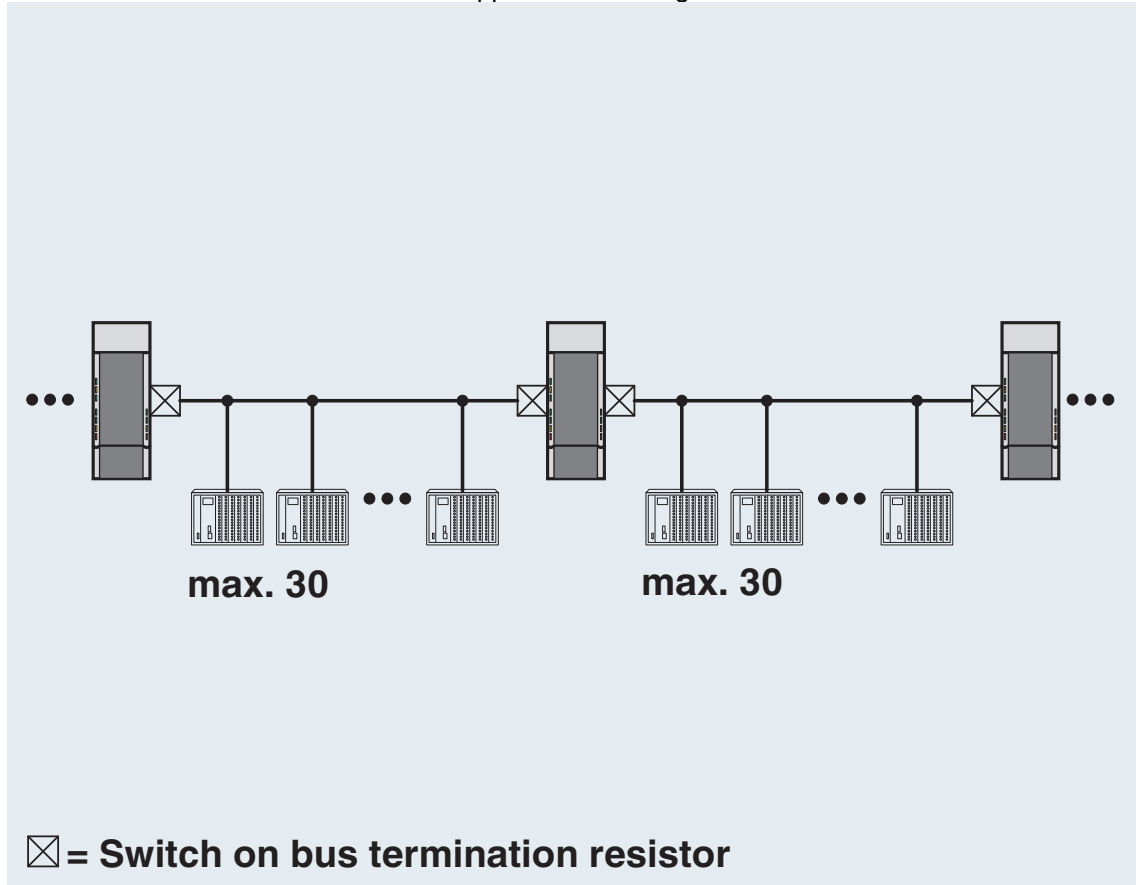
Housing dimensions

Application drawing



Branch line

Application drawing



Line structure

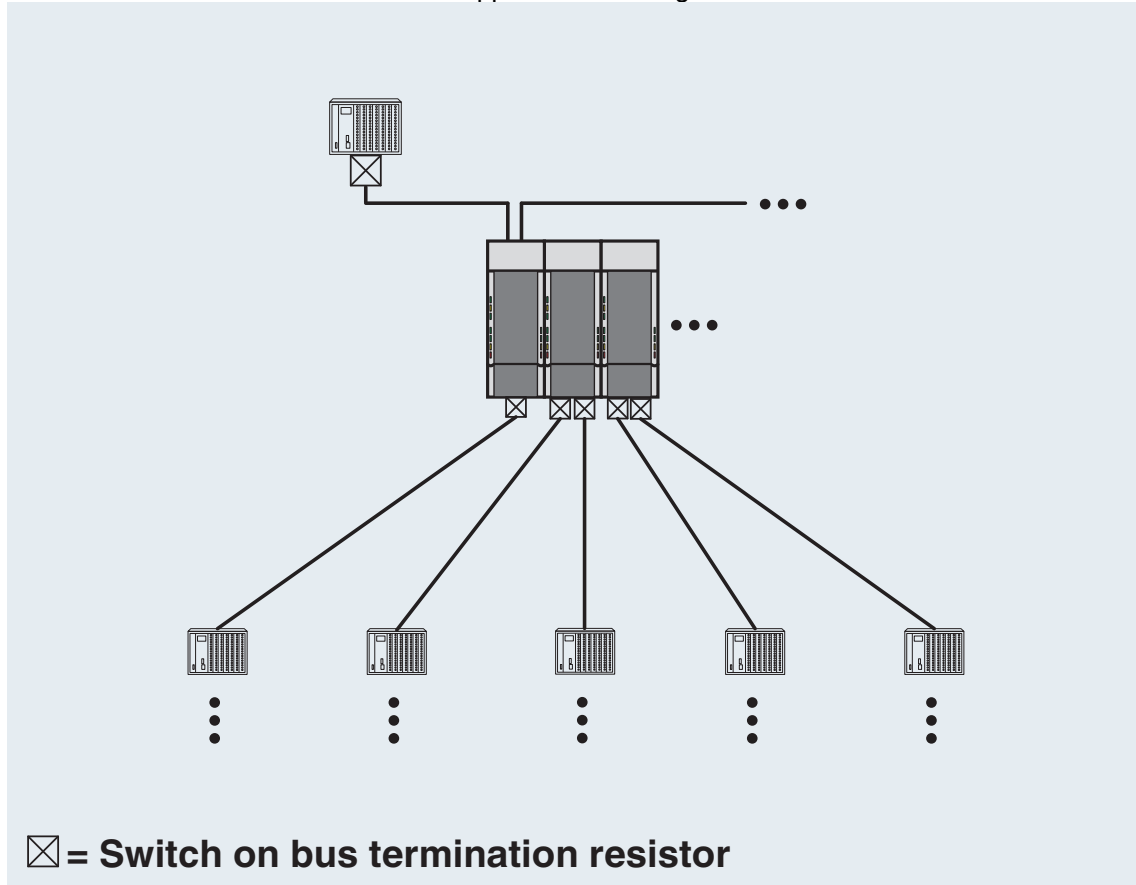
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Application drawing



Star structure

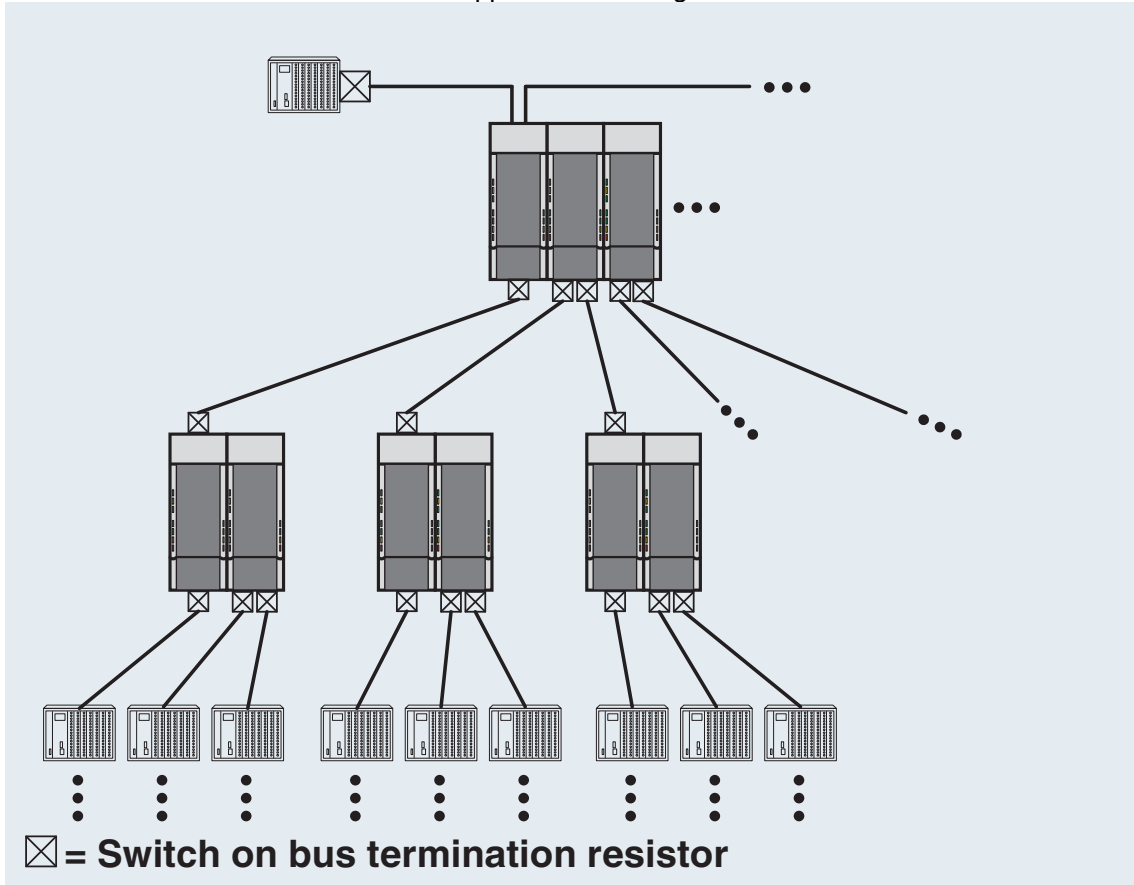
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Application drawing



Tree structure

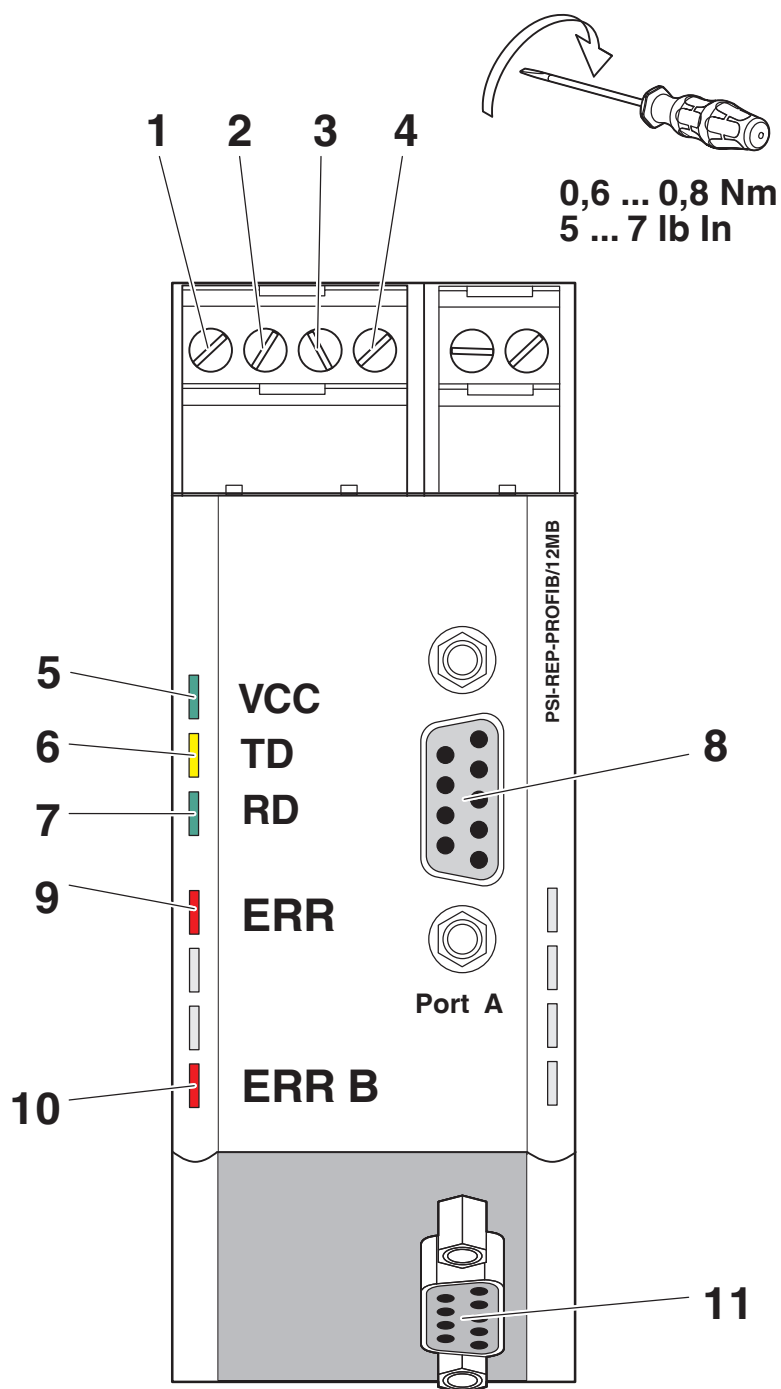
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Schematic diagram



Front view

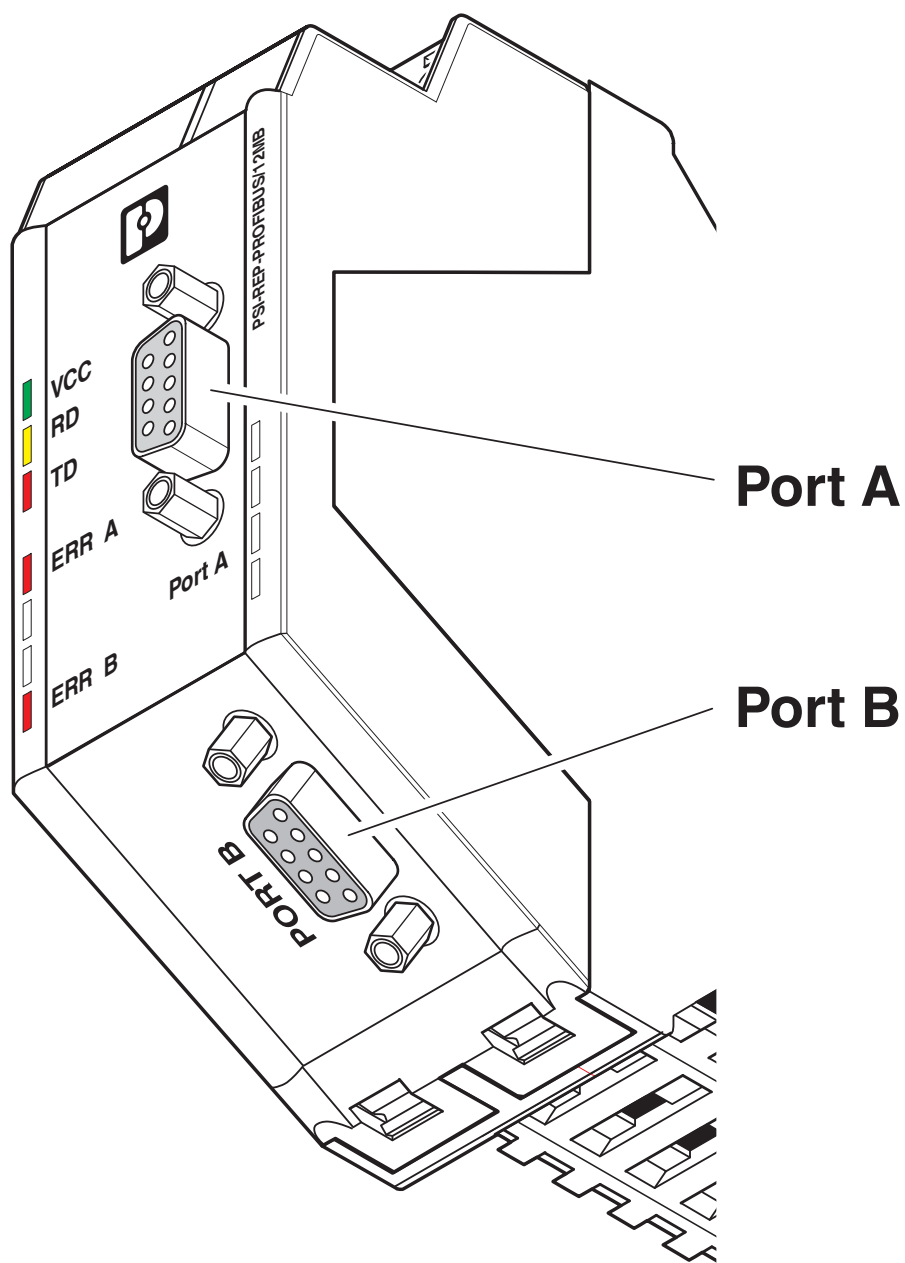
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Schematic diagram



Device connections

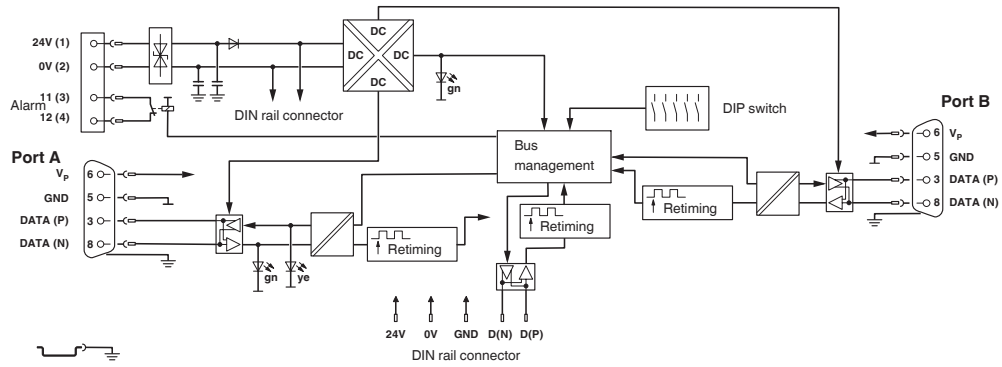
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Block diagram



Circuit diagram

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Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2708863>



KC
Approval ID: MSIP-REI-PCK-2708863



cULus Listed
Approval ID: E238705



cULus Recognized
Approval ID: E238705



cUL Listed
Approval ID: E199827



UL Listed
Approval ID: E199827

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Classifications

ECLASS

ECLASS-13.0	27242208
ECLASS-15.0	27242208

ETIM

ETIM 9.0	EC001423
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UNSPSC

UNSPSC 21.0	43222600
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Environmental product compliance

EU RoHS	
Fulfills EU RoHS substance requirements	Yes
Exemption	7(a), 7(c)-I
China RoHS	
Environment friendly use period (EFUP)	EFUP-50
	An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required.
EU REACH SVHC	
REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)
SCIP	9db7fad1-e573-4b3c-82c8-9fea0df51fda

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Accessories

PSM-CABLE-PROFIB/FC - Bus system cable

2744652

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By the meter, Bus system cable, PROFIBUS (12 Mbps), shielded, PVC FR VI/PVC, violet, 2-wire (1x2xAWG22/1), color single wire: red, green, cable length: Free entry (1.0 ... 1000.0 m)

QUINT4-SYS-PS/1AC/24DC/2.5/SC - Power supply

2904614

<https://www.phoenixcontact.com/us/products/2904614>



Primary-switched power supply, QUINT POWER, screw connection, DIN rail mounting, supply of devices possible via the TBUS DIN rail connector, protective coating, input: single-phase, output: 24 V DC/2.5 A

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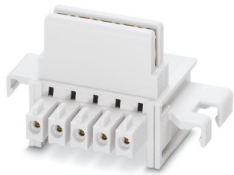
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ME 17,5 TBUS 1,5/ 5-ST-3,81 KMGY - DIN rail bus connector

2713645

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DIN rail bus connector, color: light gray, nominal current: 8 A (parallel contacts), rated voltage (III/2): 125 V, number of positions: 5, product range: TBUS5-17,5..., pitch: 3.81 mm, mounting: DIN rail mounting, locking: without, mounting method: without, type of packaging: packed in cardboard, Item with gold-plated contacts, bus connectors for connecting with electronics housings, 5 parallel contacts

PSI-TERMINATOR-PB-TBUS - Termination resistor

2702636

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Active termination resistor for PROFIBUS and RS-485 bus systems, redundant power supply, routing of the supply voltage via DIN rail connector, electrical isolation, switchable termination, integrated programming interface

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SUBCON-PLUS-PROFIB/90/PG/SC - D-SUB bus connector

2313708

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D-SUB connector, 9-pos., pin, 90° cable outlet, bus system: PROFIBUS DP up to 12 Mbps with PG D-SUB socket for connecting a programming device, termination resistor can be switched on via slide switch, pin assignment: 3, 5, 6, 8; screw connection terminal blocks

SUBCON-PLUS-PROFIB/PG/SC2 - D-SUB bus connector

2708245

<https://www.phoenixcontact.com/us/products/2708245>



D-SUB connector, 9-pos., pin, 35° cable outlet, bus system: PROFIBUS DP up to 12 Mbps with PG D-SUB socket for connecting a programming device, termination resistor can be switched on via slide switch, pin assignment: 3, 5, 6, 8; screw connection terminal blocks

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SUBCON-PLUS-PROFIB/90/PG/IDC - D-SUB bus connector

2313685

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D-SUB connector, 9-pos., pin, 90° cable outlet, bus system: PROFIBUS DP up to 12 Mbps with PG D-SUB socket for connecting a programming device, termination resistor can be switched on via slide switch, pin assignment: 3, 5, 6, 8; IDC terminal block connection

SUBCON-PLUS-PROFIB/AX/M12 - D-SUB bus connector

2902321

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D-SUB connector, 9-pos., pin, assignment: 3, 5, 6, 8; two M12 cable entries (B-coded), axial. Bus system: PROFIBUS DP up to 12 Mbps. Termination resistor via separate M12 terminator.

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SUBCON-PLUS-PROFIB/90X/M12 - D-SUB bus connector

2902729

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D-SUB plug, 9-pos., pin, assignment: 3, 5, 6, 8; two 90° cable entries M12 (B-coded). Bus system: PROFIBUS DP up to 12 Mbps. Termination resistor via separate M12 terminator. Long version; S7-compatible.



SUBCON-PLUS-PROFIB/90/M12 - D-SUB bus connector

2902318

<https://www.phoenixcontact.com/us/products/2902318>

D-SUB plug, 9-pos., pin, assignment: 3, 5, 6, 8; two 90° M12 cable glands (B-coded). Bus system: PROFIBUS DP up to 12 Mbps. Termination resistor via separate M12 terminator.



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SUBCON-PLUS-PROFIB/35/M12 - D-SUB bus connector

2902320

<https://www.phoenixcontact.com/us/products/2902320>



D-SUB plug, 9-pos., pin, assignment: 3, 5, 6, 8; two 35° cable entries M12 (B-coded). Bus system: PROFIBUS DP up to 12 Mbps. Termination resistor via separate M12 terminator.

PSI-MOS-PROFIB/FO 660 T - FO converters

2708287

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FO converter with integrated optical diagnostics, alarm contact, for PROFIBUS up to 12 Mbps, T-coupler with two FO interfaces (FSMA), 660 nm, for polymer/PCF fiber cable

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PSI-MOS-PROFIB/FO 660 E - FO converters

2708290

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FO converter with integrated optical diagnostics, alarm contact, for PROFIBUS up to 12 Mbps, terminal device with one FO interface (FSMA), 660 nm, for polymer/PCF fiber cable

PSI-MOS-PROFIB/FO 850 T - FO converters

2708261

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FO converter with integrated optical diagnostics, alarm contact, for PROFIBUS up to 12 Mbps, T-coupler with two FO interfaces (BFOC), 850 nm, for PCF/fiberglass cable (multimode)

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PSI-MOS-PROFIB/FO 850 E - FO converters

2708274

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FO converter with integrated optical diagnostics, alarm contact, for PROFIBUS up to 12 Mbps, terminal device with one FO interface (BFOC), 850 nm, for PCF/fiberglass cable (multimode)

PSI-MOS-PROFIB/FO1300 T - FO converters

2708892

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Fiber optic converter with integrated optical diagnostics, alarm contact, for PROFIBUS up to 12 Mbps, T-coupler with two fiber optic interfaces (SC-Duplex), 1300 nm, for fiberglass cable

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PSI-MOS-PROFIB/FO1300 E - FO converters

2708559

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Fiber optic converter with integrated optical diagnostics, alarm contact, for PROFIBUS up to 12 Mbps, termination device with one fiber optic interface (SC-Duplex), 1300 nm, for fiberglass cable

PSI-MODEM-SHDSL/PB - Modem

2313656

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Industrial PROFIBUS extender, for point-to-point connections, linear structures, and mixed operation with repeaters and fiber optic converters. Distances of up to 20 km, PROFIBUS data rates of up to 1.5 Mbps via simple copper wires, such as in-house phone lines.

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Phoenix Contact USA
586 Fulling Mill Road
Middletown, PA 17057, United States
(+717) 944-1300
info@phoenixcon.com